

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000268**Date Inspected:** 03-Jul-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Xu Bing**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** N/A**Summary of Items Observed:**

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welding qualification testing pertinent for the welding qualification record (PQR) HP2007149 and welding procedure for the PQR HP2007148 scheduled for this project. ZPMC, welder operator Zhu Hai Ping was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-3213 for the PQR identified as HP2007149. Base metal was designated as A-709 Grade HPS485WT2/Z (Heat # 07101250N). ZPMC followed the Production procedure WPS criteria (AWS 5.13) using the shielded metal arc welding (SMAW) process in the vertical (3G) position with the 4.0 mm diameter designated as E7018-1, brand name THJ506Fe-1. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspector witnessed passes 24 through 36 (layers 16 thru 24). The QA inspectors performed random verifications of the welding parameters for a total of 12 passes. The QA inspectors found that the welding parameters taken by Quality Control (QC) inspector Xu Bing and ZPMC QA inspector Lu Jian Ping appeared to be accurate and in accordance with the contract documents.

ZPMC, welder operator Chen Ru Yang was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-3211 for the PQR identified as HP2007148.

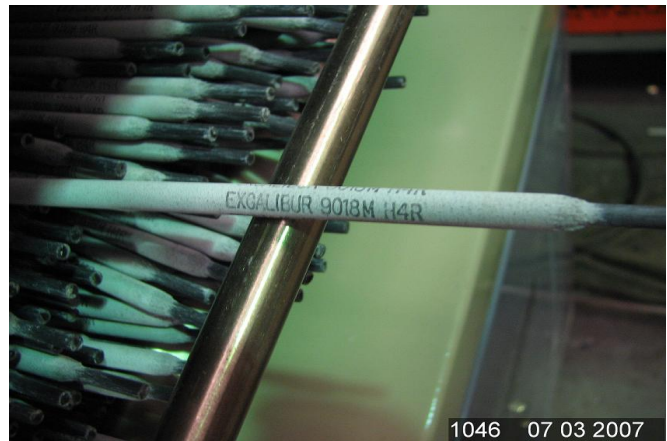
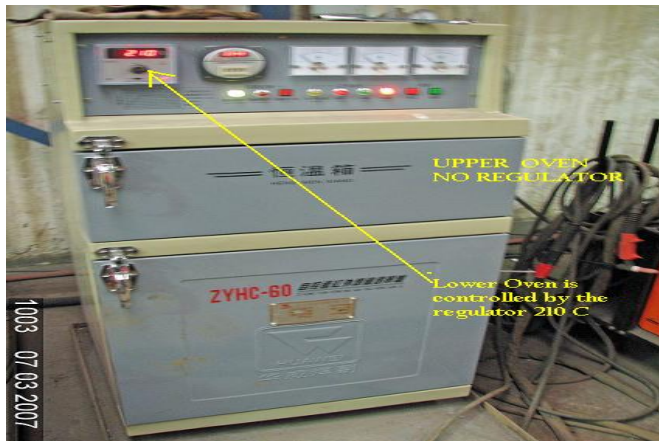
Base metal was designated as A-709 Grade HPS485WT2/Z (Heat # 07101250N). ZPMC followed the Production procedure WPS criteria (AWS 5.13) using the shielded metal arc welding (SMAW) process in the vertical (1G) position with the 5.0 mm diameter designated as E7018-1, brand name THJ506Fe-1. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspector witnessed passes 7 through 20 (layers 6 thru 12). The QA inspectors performed random verifications of the welding parameters for a total of 14 passes. The QA inspectors found that the welding parameters taken by Quality Control (QC) inspector Xu Bing and ZPMC QA inspector Lu Jian Ping appeared to

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be accurate and in accordance with the contract documents. The PQRs testing were still in process at the end of the shift.

In cursory verifications, the QA inspector observed that electrodes E9018M-4HR Excalibur inside of the oven assigned for welding PQRs for the Caltrans San Francisco Bay Bridge project were maintained with the approximately temperature 80° C to 105° C in lieu of 120° C minimum in accordance with AWS D1.5-2002 section 4, 12 and AWS A5.5 specification for Low alloy steel electrodes for SMAW (note: the upper side oven did not comply with AWS 12.6.5.5 storage electrodes with shall allow direct temperature reading from the inside without opening the door from the oven). The electrodes have been maintained in this conditions for a indefinite period of time. See digital photographs below. The QA inspector had a conversation with the ABF QA inspector Kevin Dye. The QA inspector brought to Mr. Dye attention that the temperature measured with the infrared temperature indicator gun inside the holding oven was less than 110° C. Mr. Dye and ZPMC agreed with QA inspector and relayed that the upper side of the oven did not have a temperature regulator. The bottom side of the oven which has a temperature regulator was transferring heat to the upper side. Mr. Dye recommended to ZPMC representatives to re-bake or discard the electrodes E9018M H4R found on the upper oven with temperature lower than the minimum requirements.



## Summary of Conversations:

As noted on paragraph above.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or

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remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Acuna,Alfredo	Quality Assurance Inspector
<b>Reviewed By:</b>	McClary,David	QA Reviewer

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